

REMARKS

Applicant appreciates the time taken by the Examiner to review Applicant's present application. This application has been carefully reviewed in light of the Official Action mailed March 17, 2008. Applicant respectfully requests reconsideration and favorable action in this case.

Rejections under 35 U.S.C. § 101

Claims 29 and 65 stand rejected under 35 U.S.C. § 101. Claims 29 and 65 are canceled herein.

Rejections under 35 U.S.C. § 112

Claims 28 and 64 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 28 and 64 are canceled herein.

Rejections under 35 U.S.C. § 102

Claims 1-14, 19-20, 22-25, 28-38, 40-45, 47-52, 54-56, 59-60 and 62-65 were rejected as anticipated by U.S. Patent No. 6,985,937 ("Keshav"). Applicant respectfully traverses the rejection. Claims 30 and 54 recite similar language as claim 1. Therefore, the rejection will be addressed as it pertains to claim 1.

Amended claim 1 recites:

A method for regulating resource usage by a plurality of distributed applications running on a plurality of interconnected machines, the method comprising:
providing a global, distributed resource policy specifying allocation of resources of the plurality of machines to the set of distributed applications;
determining resources available at the plurality of interconnected machines;
detecting one or more requests for resources by each of the plurality of distributed applications running on the plurality of interconnected machines;
periodically exchanging resource information amongst the plurality of interconnected machines, wherein the resource information includes updated resource policies, requests for the resources and resource availability at at least one of the plurality of interconnected machines; and
at each of the plurality of interconnected machines, allocating the resources to each of the plurality of distributed applications based upon the global, distributed resource policy and the resource information.

Thus, embodiments disclosed by Applicant may have a global, distributed resource policy that specifies allocation of resources running on a plurality of interconnected machines. The method may include determining resources available at each of the interconnected machines and detecting requests for resources at the machines. Interconnected machines may periodically exchange information with other interconnected machines, and allocation of resources on each machine may be based on the global, distributed resource policy.

In the rejection of claim 1, the Examiner states that Keshav discloses a resource policy specifying allocation of resources amongst a plurality of programs. Applicant respectfully submits that Keshav is not concerned with a distributed resource policy to manage distributed applications or using communication between the interconnected machines to allocate the resources according to the distributed resource policy.

Keshav has centralized control including a virtual service resource monitor, a physical host load balancer, and a dynamic virtual server mover, and Keshav describes virtual servers, in which each virtual server may be located on only one physical host. See, Keshav, Figure 1. Communication such as monitoring the virtual servers is generally accomplished by a single component, such as the virtual server resource monitor. See, Keshav, Col. 5, lines 6-8. Virtual servers may be moved between physical hosts to balance the loads. See, Keshav, Col. 5, lines 10-12. In contrast, Applicant discloses embodiments in which a global resource policy that specifies allocation of resources is distributed across a network of interconnected computers and each computer in the plurality of interconnected machines contains a portion of the distributed resource policy. See, Specification, paras. [0068], [0072]. Thus, each machine in Applicant's invention has some control over its resources and may not be concerned with resources used by other machines.

The Examiner further states that Keshav's quality of service that allocates resources to a virtual server is equal to a distributed policy that allocates resources among interconnected machines for running distributed applications. Applicant respectfully disagrees. Keshav describes adjusting the quality of service guarantees for virtual servers based upon the resource demands experienced by the virtual servers. See, Keshav, Col. 2, lines 33-35. Furthermore, Keshav teaches monitoring the virtual server resource to see if it is overloaded and monitoring the physical host resource to see if it is overloaded, and then selecting a new physical host to accommodate the increased virtual server. See, Keshav, Figure 2A and Col. 5, lines 6-15. As generally described above, monitoring a virtual server and the decision to select

a new physical source are accomplished by Keshav's centralized Dynamic Resource Configuration Module (100). However, Applicant discloses embodiments in which the allocation of resources may be distributed among a plurality of interconnected machines, which may ensure enough resources to meet the demand. Applicant discloses embodiments in which a resource policy is distributed to interconnected machines, requests for resources for a machine are detected by the machines, and the interconnected machines exchange information, including resource usage and requests for resources. See, Specification, paras. [0021-0023] and [0068]. Applicant respectfully submits that by detecting requests, monitoring resource usage, and exchanging information about the requests and resource usage in a distributed system, embodiments may provide a scalable methodology for maximizing utilization levels of data centers while guaranteeing service levels at all times. See, Specification, paras. [0062-0063], [0065], [0067].

Furthermore, Applicant respectfully submits that Keshav's virtual servers are predetermined and do not change dynamically. Thus, if a virtual server or physical host is overloaded, the virtual server may be transferred to another physical host or a new physical host may be selected. See, Keshav, Col. 5, line 45 – Col. 6, line 21. In contrast, Applicant discloses embodiments in which an application may be run on several servers and the applications (and their components) may be defined (and redefined) by the user. See, Specification, para. [0068]. For at least the foregoing reasons, Applicant respectfully submits that Keshav fails to teach or describe a distributed policy that specifies allocation of resources running on interconnected machines. Accordingly, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 15-18, 26-27, 39, 53, and 57-58 were rejected as obvious over Keshav in view of U.S. Patent No. 7,120,685 ("Ullmann"). Applicant respectfully traverses the rejection.

In the rejection, the Examiner states Ullmann discloses a monitoring system (THFL) where the frequency can be adjusted by the user. Applicant respectfully submits that Ullmann describes new methods for a single server handling of requests coming from multiple clients, whereas Applicant discloses embodiments in which applications are distributed over a number of machines, and which handle incoming and outgoing communications. For at least the foregoing reasons, Applicant respectfully submits that Keshav and Ullmann, alone or in

combination, fail to teach embodiments disclosed by Applicant. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 21, 46 and 61 were rejected as obvious over Keshav in view of U.S. Patent No. 6,298,386 (“Vahalia”). Applicant respectfully submits that, similarly to the reasons present with respect to Keshav, Vahalia describes a centralized control, and does not teach or describe distributed policies. Vahalia describes a collector queue that combines messages from concurrent processes and send them to threads of the server rather than individual pipes, and the collector queue keeps track of which pipe each message came from so that the reply to each message is directed to the pipe from which the message came. See, Vahalia, Col. 2, lines 11-26. For at least the foregoing reasons, Applicant respectfully submits that Valhalia, either alone or in combination with Keshav, fails to teach or describe distributed systems. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

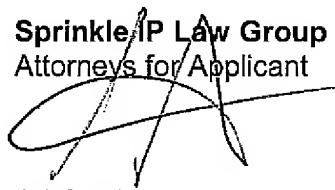
Applicant has now made an earnest attempt to place this case in condition for allowance. Other than as explicitly set forth above, this reply does not include an acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests full allowance of Claims 1 - 27, and 30 - 63. The Examiner is invited to telephone the undersigned at the number listed below for prompt action in the event any issues remain.

An extension of two (2) months is requested and a Notification of Extension of Time Under 37 C.F.R. § 1.136 with the appropriate fee is enclosed herewith.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

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